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UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA
SAN DIEGO DIVISION
Case No. 3:15-CV-01735-H-RBB

ODYSSEY WIRELESS, INC.,	Plaintiff,)	PLAINTIFF ODYSSEY WIRELESS, INC.'S OPENING CLAIM CONSTRUCTION BRIEF
v.)	
APPLE INC.,)	
	Defendant.)	
ODYSSEY WIRELESS, INC.,)	
	Plaintiff,)	Case No. 3:15-CV-01738-H-RBB
v.)	
SAMSUNG ELECTRONICS CO., LTD.,)	
ET AL.,)	
	Defendants.)	
ODYSSEY WIRELESS, INC.,)	
	Plaintiff,)	Case No. 3:15-CV-01741-H-RBB
v.)	
MOTOROLA MOBILITY LLC,)	
	Defendant.)	
ODYSSEY WIRELESS, INC.,)	
	Plaintiff,)	Case No. 3:15-CV-01743-H-RBB
v.)	
LG ELECTRONICS, INC., ET AL.,)	
	Defendants.)	

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1 **I. INTRODUCTION**

2 Odyssey Wireless, Inc. (“Odyssey”) respectfully submits this brief on the
 3 proper construction of disputed claim terms in related U.S. Patents Nos. 8,199,837
 4 (“’837 patent”) (Ex. C), 7,881,393 (“’393 patent”) (Ex. D), 8,576,940
 5 (“’940 patent”) (Ex. E), 8,660,169 (“’169 patent”) (Ex. F), 8,855,230 (“’230
 6 patent”) (Ex. G), and 8,879,606 (“’606 patent”) (Ex. H) (collectively, the “patents-
 7 in-suit”).¹

8 Defendants raise disputes regarding thirty claim terms, and propose
 9 constructions that repeatedly: (1) conflict with the claim language; (2) import
 10 extraneous limitations into the claims; and (3) exclude disclosed embodiments.
 11 These proposed constructions are improper and should be rejected. Indeed, because
 12 a person of ordinary skill in the art understands the plain and ordinary meaning of
 13 each of the thirty claim terms at issue, none of the terms require construction.
 14 Nevertheless, in an effort to minimize the disputes before the Court, Odyssey
 15 proposes constructions that track Defendants’ proposals but excise the portions that
 16 improperly contravene fundamental rules of claim construction. These competing
 17 proposals are reflected in Exhibit A.

18 **II. DR. KARABINIS INVENTED A COMMUNICATIONS SYSTEM
 19 WITH IMPROVED BANDWIDTH**

20 Dr. Peter Karabinis founded Odyssey and invented the patented technology.
 21 He earned a Ph.D. in electrical engineering and has thirty-five years of experience
 22 in the field of wireless communications working for leading technology companies,
 23 including Bell Telephone Laboratories, Raytheon Company, and Ericsson.

24 Dr. Karabinis’ invention provides important benefits to mobile device users.
 25 Videos and high-resolution photos are regularly sent from mobile devices over
 26 cellular networks. The ability to send large files from a mobile device is one of the

27 ¹ The specifications of the patents-in-suit have a common disclosure, and because
 28 the asserted claims are fully supported by the earliest filed ’837 patent specification,
 Odyssey cites to this specification throughout this brief.

1 hallmarks of the modern LTE network, allowing for many applications such as
 2 video chat, cloud backup of multimedia, and sharing of high-resolution photos. As
 3 a result, a user's demand for bandwidth can be very high. The amount of time it
 4 takes a user to upload a large file depends on the amount of bandwidth available to
 5 that user. The more bandwidth a user is allocated, the faster the transfer. To satisfy
 6 the ever-growing demand for bandwidth, efficient information transmission
 7 schemes are essential in wireless communications systems.

8 The patents-in-suit teach more efficient information transmission schemes by
 9 increasing the bandwidth in modern wireless communications systems. One
 10 inventive aspect varies the amount of bandwidth allocated to users of a wireless
 11 communications system over time, which allows a wireless communications system
 12 to efficiently allocate bandwidth to users who need it.

13 Another aspect of the invention teaches covert communications, which is
 14 useful for military applications. The patent teaches that covert communications may
 15 make use of non-cyclostationary (non-repeating) waveforms, whereas commercial
 16 (*i.e.*, non-covert) communications may make use of cyclostationary (repeating)
 17 waveforms. Fig. 16 of the '837 patent illustrates these two modes of operation.

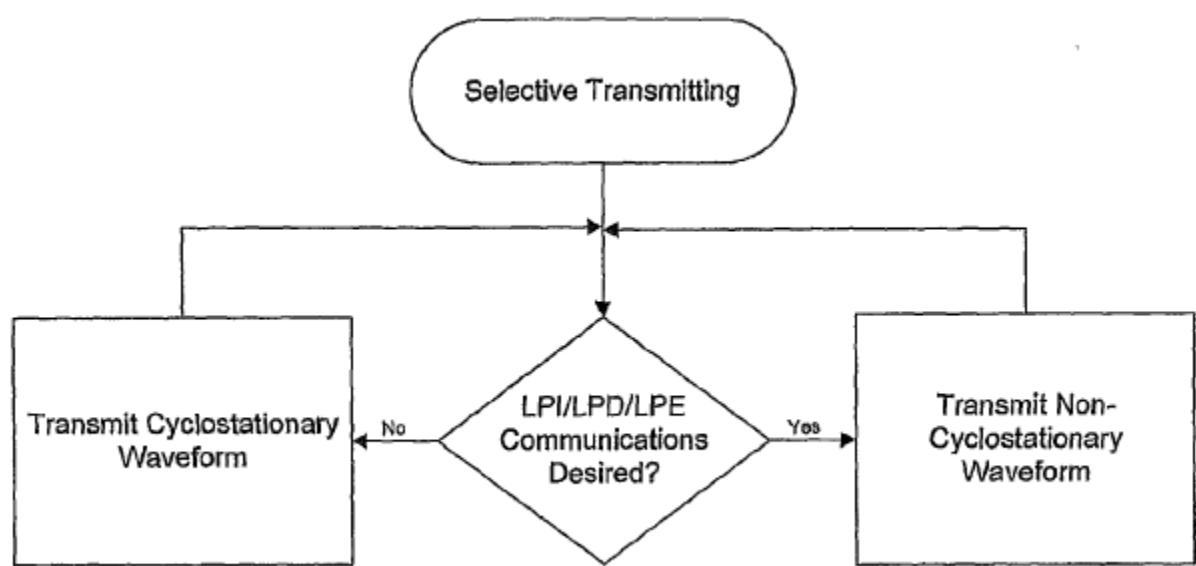
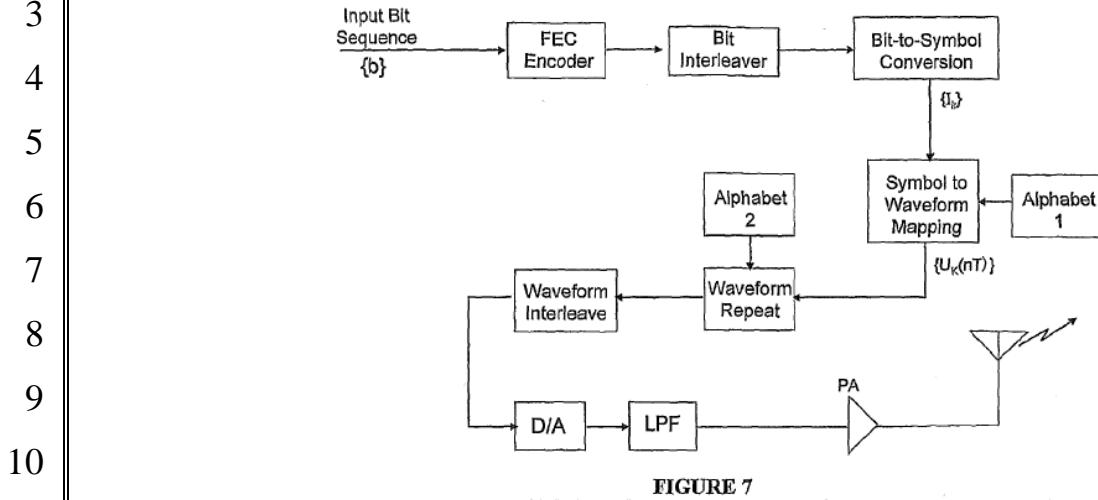


Fig. 7 of the '837 patent depicts one transmitter embodiment for use in a wireless communications system.

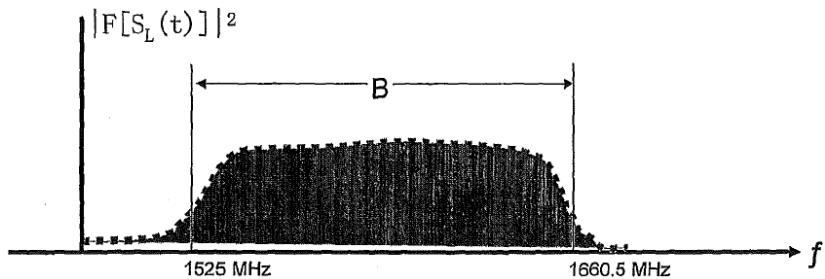


Information is provided in the form of an input bit sequence $\{b\}$ that is encoded, interleaved, and symbol converted into a symbol sequence $\{I_k\}$. Next, each information symbol in the information symbol sequence $\{I_k\}$ is mapped to a corresponding waveform. The waveform is from a set of waveforms known as a waveform alphabet. This generates a waveform sequence $\{U_k(nT)\}$, where each waveform of the waveform sequence conveys some portion of the original input bit sequence. The waveform sequence then undergoes additional signal processing operations before being transmitted. A receiver receives the transmitted waveform and, having knowledge of the waveform alphabet and information symbol-to-waveform mapping, reconstructs the input bit sequence.

An important aspect of the invention is that the waveforms within the waveform sequence $\{U_k(nT)\}$ may have differing bandwidths or may exist over differing frequency ranges. Dr. Karabinis describes this in reference to the “frequency content” of the waveforms and the “spectrum shape” of the waveforms. The frequency content of a waveform is the range of frequencies over which the waveform exists. For example, the first trace from Fig. 8 of the '837 patent

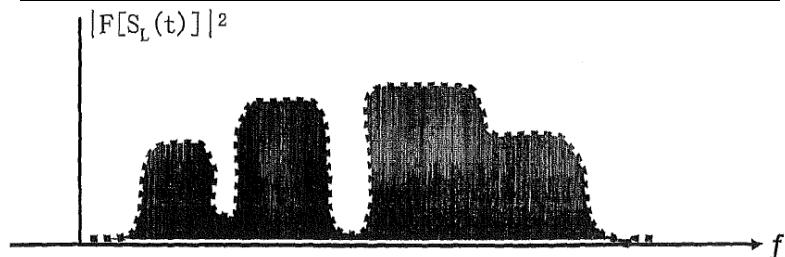
1 illustrates a waveform with frequency content from about 1525 MHz to about
 2 1660.5 MHz.

3 **Frequency Content, as Displayed in Fig. 8 of the '837 patent**

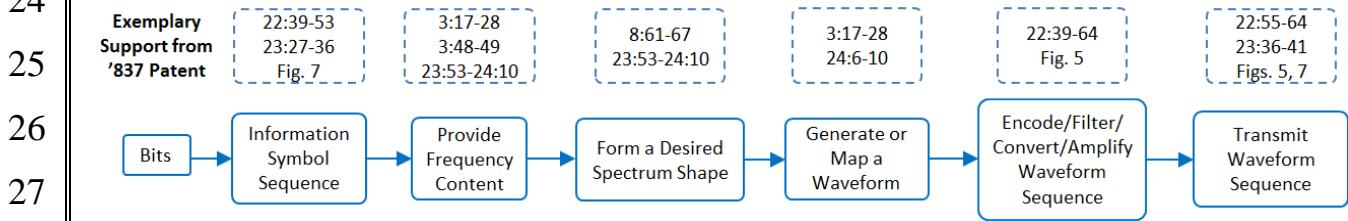


9 The spectrum shape of the waveform is the collection of frequencies over
 10 which the waveform provides content. This is closely related to the frequency
 11 content of the waveform—a difference being a spectrum shape may be formed by
 12 subtracting out certain frequencies where there would otherwise be frequency
 13 content. This is visualized with a plot of a waveform's intensity over different
 14 frequencies, as shown in the second trace taken from Fig. 8 of the '837 patent.

15 **Spectral Shape, as Displayed in Fig. 8 of the '837 patent**



21 The patents-in-suit all differ slightly in the scope of their claims. A simplified
 22 overview of the process required by the claims across the patents-in-suit is depicted
 23 below (though not all asserted claims include each of the blocks depicted).



1 **III. LEVEL OF ORDINARY SKILL IN THE ART**

2 Claim terms are to be construed from the viewpoint of one of ordinary skill
 3 in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313
 4 (Fed. Cir. 2005) (en banc); *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256
 5 (Fed. Cir. 2007) (listing the factors used to determine the level of ordinary skill).
 6 Considering all of the *Daiichi* factors in the context of the technology of the
 7 patents-in-suit, one of ordinary skill in the art in the relevant time frame would have
 8 had a master's degree in electrical engineering with at least two years of experience
 9 in the field of wireless telecommunications systems, or equivalent.

10 **IV. PRINCIPLES OF CLAIM CONSTRUCTION**

11 The Court is familiar with the principles of claim construction. *E.g., Presidio*
 12 *Components, Inc. v. Am. Tech. Ceramics Corp.*, No. 14-CV-2061-H (S.D. Cal. July
 13 22, 2015); *Catheter Connections, Inc. v. Ivera Med. Corp.*, No. 14-CV-2208-H,
 14 2015 U.S. Dist. LEXIS 148890 (S.D. Cal. May 22, 2015); *e.Dig. Corp. v. Micron*
 15 *Consumer Prods. Grp.*, No. 13-CV-2907-H, 2015 U.S. Dist. LEXIS 148886
 16 (S.D. Cal. Feb. 19, 2015)). Accordingly, and for the sake of brevity, *Odyssey*
 17 addresses the most relevant points of law in its discussion of the issues.

18 **V. ARGUMENT**

19 **A. Because Dr. Karabinis Neither Acted as His Own Lexicographer**
 20 **Nor Disavowed Any Claim Scope for the Disputed Claim Terms,**
 21 **Those Terms Should Be Construed According to Their Plain and**
 22 **Ordinary Meanings.**

23 Claim terms are given their ordinary meanings as understood by a person of
 24 ordinary skill, with two limited exceptions: “1) when a patentee sets out a definition
 25 and acts as his own lexicographer; or 2) when the patentee disavows the full scope
 26 of the claim term either in the specification or during prosecution.” *Hill-Rom Servs.,*
 27 *Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014); *see also Thorner v.*
 28 *Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

1 Dr. Karabinis expressly defined some terms in the specification, but none of
 2 those defined terms relate to the disputed claim terms. *E.g.*, Ex. C ('837 patent) at
 3 16:54–57 (defining “substantially the same”). And Dr. Karabinis was clear that, if
 4 not expressly defined, the claim terms were to be given their plain and ordinary
 5 meaning. *Id.* at 16:33–42. Dr. Karabinis also did not disavow any claim scope in the
 6 specification or during prosecution of the patents-in-suit.

7 Since neither exception to plain meaning applies, all of the disputed claim
 8 terms should be “given their ordinary and customary meanings as understood by a
 9 person of ordinary skill in the art when read in the context of the specification and
 10 prosecution history.” *Thorner*, 669 F.3d at 1365.

11 **B. Defendants’ Proposals Should Be Rejected Because They Conflict
 12 With the Claim Language, Import Extraneous Limitations, and
 13 Exclude Disclosed Embodiments.**

14 As explained by the Federal Circuit, “Courts do not rewrite claims; instead,
 15 we give effect to the terms chosen by the patentee.” *K-2 Corp. v. Salomon S.A.*,
 16 191 F.3d 1356, 1364 (1999). The “claims themselves provide substantial guidance
 17 as to the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. And when
 18 considering the ordinary meaning in light of the specification, it “is improper to
 19 read limitations from a preferred embodiment described in the specification—even
 20 if it is the only embodiment—into the claims absent a clear indication in the
 21 intrinsic record that the patentee intended the claims to be so limited.” *GE Lighting
 22 Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014). Where multiple
 23 embodiments are taught, a construction that “excludes a [disclosed] embodiment
 24 from the scope of the claim is rarely, if ever, correct.” *Broadcom Corp. v. Emulex
 25 Corp.*, 732 F.3d 1325, 1333 (Fed. Cir. 2013) (alteration in original).

26 Defendants’ proposals contain five principal limitations that violate these
 27 fundamental rules of claim construction. As noted, Odyssey contends that no
 28

1 construction of the disputed terms is necessary.² But in an effort to narrow the
 2 disputed issues, Odyssey adopted the acceptable portions of Defendants' proposals,
 3 while maintaining its objections to the improper limitations that Defendants import
 4 into the claims. Exhibit A groups the thirty disputed claim terms based on each of
 5 these five issues.³ Some terms appear in multiple groups as these terms contain
 6 more than one of the five limitations. When the added limitations are removed (and
 7 a few additional miscellaneous errors discussed below are corrected), Odyssey's
 8 constructions do not differ meaningfully from Defendants' proposals.

9 Accordingly, Odyssey's brief focuses on Defendants' error in rewriting the
 10 claims to add these five limitations. As detailed below, the limitations Defendants
 11 propose (1) are inconsistent with the claim language; (2) import limitations from
 12 the specification or other claims; and (3) exclude disclosed embodiments from the
 13 scope of the claimed inventions. These limitations should not be added to the
 14 asserted claims, and Defendants' proposals should be rejected in favor of
 15 constructions that reflect the plain and ordinary meanings of the claim terms.

16 **1. Waveforms are not limited to "pseudo-random, non-
 17 cyclostationary, and orthogonal and/or orthonormal
 18 waveforms" (claim terms 5, 7-18, 25-27).**

19 Dr. Karabinis' invention uses or generates waveforms to transmit
 20 information. Certain asserted claims require the use of a waveform sequence, while
 21 others require the use of a waveform alphabet. One of skill in the art knows that a
 22 waveform is the shape of a signal—the shape of an electromagnetic signal that is
 23 transmitted over the air in a wireless communications system. Declaration of
 24 Dr. Mung Chiang in Support of Plaintiff's Opening Claim Construction Brief

25 ² Defendants' proposals are not helpful to the jury, as they do not explain technical
 26 terms in the claims, but merely add limitations.

27 ³ Exhibit A also provides the parties' construction of each term, highlighting the
 28 added limitations in Defendants' proposals for ease of reference. Claim term
 numbers in Exhibit A and this brief correspond to the parties' Joint Claim
 Construction Chart.

1 (“Chiang Decl.”) at ¶¶ 13–15; Ex. K (Merriam Webster’s Collegiate Dictionary
 2 (11th Ed. 2003)) (defining “waveform”).

3 Defendants’ proposals for claim terms 5, 7–18, and 25–27 limit all
 4 waveforms in the invention to waveforms with certain attributes: waveforms that
 5 are “pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal.”
 6 Ex. A at 1–8. This limitation: (1) is inconsistent with the claim language; (2) adds
 7 limitations from other claims; and (3) excludes embodiments of the inventions.

8 a. Plain and ordinary meaning does not limit waveforms to
 9 “pseudo-random, non-cyclostationary, and orthogonal
and/or orthonormal waveforms.”

10 The plain and ordinary meanings of the claim terms are apparent from the
 11 claims themselves and demonstrate the impropriety of the limitations Defendants
 12 seek to impose. Take, for example, claim term 15.

#	Term	Odyssey’s Construction	Defendants’ Proposal
15	generating the waveform (’393 Claims 1, 8, 15, 22)	generating a waveform by inverse Fourier transforming the desired spectrum shape	<i>creating</i> a waveform <i>that is one of a set of pseudo-random, non- cyclostationary, and orthogonal and/or orthonormal waveforms</i> by inverse Fourier transforming the desired spectrum shape

16 The term “generating the waveform” contains three words, none of which
 17 require “pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal”
 18 waveforms, as Defendants propose. Rather, Defendants change the claim language
 19 to include limitations that Dr. Karabinis chose not to use in defining his invention
 20 for these claims—impermissibly altering the scope of the claims. *K-2 Corp.*, 191
 21 F.3d at 1364. These limitations are not supported by the claim language.

22 The claim itself provides a definition: “generating the waveform by inverse
 23 Fourier transforming the desired spectrum shape.” Nothing about generating a
 24 waveform by inverse Fourier transform necessarily results in a waveform that is
 25 “pseudo-random,” “non-cyclostationary,” “orthogonal,” or “orthonormal.” Chiang
 26 Decl. at ¶¶ 16–22. An inverse Fourier transform operation takes frequency
 27 components as inputs and generates a signal with those frequency components as

the constituents thereof—the signal (*i.e.*, the waveform) generated need not have the limitations Defendants suggest. *Id.*

b. Claim differentiation illustrates the asserted claims are not limited to “pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal waveforms.”

When Dr. Karabinis wished to impart the “pseudo-random,” “non-cyclostationary,” or “orthogonal and/or orthonormal” attributes to the claimed waveform, he did so explicitly. This creates the presumption that these attributes do not limit the other claims. *Phillips*, 415 F.3d at 1315 (“[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.”); *id.* at 1314 (explaining that “the claim in this case refers to ‘steel baffles,’ which strongly implies that the term ‘baffles’ does not inherently mean objects made of steel”).

Dr. Karabinis specifically claimed the generation of waveforms “pseudo-randomly” in dependent claims 7, 10, 18, 21, 30, 38, 41, 54, 57, 67, and 70 of the ’230 patent (Ex. G); dependent claims 10, 13, 23, 26, 36, 39, 50, and 53 of the ’606 patent (Ex. H); dependent claims 8, 13, 21, 26, 34, 39, 48, 53, 61, 66, 74, and 79 of the ’169 patent (Ex. F); and dependent claims 8, 17, 28, 33, 42, and 47 of the ’940 patent (Ex. E).

Dr. Karabinis specifically claimed non-cyclostationary waveforms in dependent claims 9, 20, 29, 40, and 69 of the '230 patent (Ex. G) and dependent claims 12, 25, 38, and 52 of the '606 patent (Ex. H). These claims require that the “the waveform is devoid of a regularly repeating peak amplitude level.” A waveform devoid of a regularly repeating peak amplitude level is a non-cyclostationary waveform. Chiang Decl. at ¶¶ 23–25.

Dr. Karabinis specifically claimed waveforms with “orthogonality therebetween” in dependent claims 10, 21, 30, 41, 57, and 70 of the ’230 patent (Ex. G); dependent claims 13, 26, 39, and 53 of the ’606 patent (Ex. H); dependent

1 claims 13, 26, 39, 53 66, and 79 of the '169 patent (Ex. F); and dependent claims 9,
 2 18, 33 and 47 of the '940 patent (Ex. E).

3 The claims of U.S. Patent No. 8,050,337 ("337 patent")—a patent in the
 4 same family as the patents-in-suit—further show that waveforms are not limited to
 5 only "pseudo-random" and "orthogonal" waveforms. The independent claims of the
 6 '337 patent contain such limitations, Ex. I at claims 1 ("pseudo-random" and
 7 "orthogonal") and 51 ("orthogonal"), while the asserted claims in the patents-in-suit
 8 do not. The examiner on the '337 patent was an examiner on the asserted patents,
 9 maintaining continuity throughout the prosecution of the patent family. This further
 10 demonstrates that when examining the patents (including the patents-in-suit), the
 11 examiner understood that the claimed waveforms were not limited to pseudo-
 12 random and/or orthogonal waveforms absent claim language providing such an
 13 express limitation. Similarly, two independent claims of U.S. Patent No. 8,670,493
 14 ("493 patent")—another patent in the patent family related to the patents-in-suit—
 15 illustrate the same point. Independent claims 1 and 29 of the '493 patent both
 16 require "a plurality of waveforms that are orthogonal therebetween," Ex. J, while
 17 the asserted claims have no such limitation.

18 c. Limiting the asserted claims to "pseudo-random, non-
 19 cyclostationary, and orthogonal and/or orthonormal"
waveforms excludes disclosed embodiments.

20 Defendants' proposals exclude embodiments of Dr. Karabinis' invention
 21 using "cyclostationary waveforms." *E.g.*, Ex. C ('837 patent) at 15:14–15. Some
 22 communications systems require transmissions with a "Low Probability of Intercept
 23 (LPI), Low Probability of Detection (LPD) and/or Low Probability of Exploitation
 24 (LPE)." *Id.* at 1:35–36. These systems are designed for covert military applications
 25 that seek to avoid detection. Fig. 16 of the '837 patent illustrates this teaching. As
 26 Dr. Karabinis explained, "if LPI/LPD/LPE and/or minimum interference
 27 communications are desired, then non-cyclostationary waveforms may be
 28 transmitted. However, when LPI/LPD/LPE and/or minimum interference

1 communications need not be transmitted, cyclostationary waveforms may be used.”
 2 *Id.* at 15:9–15. Because Defendants’ proposals exclude all embodiments except
 3 those that are limited to covert communications embodiments, they should be
 4 rejected.⁴ *Broadcom Corp.*, 732 F.3d at 1333.

5 **2. Providing frequency content by Fourier transforming a
 6 signal is not limited to “identifying the frequency content
 7 radiated by other transmitters” (claim terms 1–2, 8–9).**

8 Dr. Karabinis’ invention requires providing frequency content for the
 9 waveform to be transmitted. Certain asserted claims require providing the
 10 frequency content for a waveform by Fourier transforming a signal. A Fourier
 11 transform is a well-defined mathematical operation which takes a signal as an input
 12 and provides the frequency content that makes up that signal. Chiang Decl. at
 13 ¶¶ 16–22; Ex. L (Microsoft Computer Dictionary, Fifth Ed. Microsoft Press, 2002
 14 at 223 “Fourier Transform”).

15 Defendants’ proposals for claim terms 1–2 and 8–9 limit the providing of
 16 frequency content to “identifying the frequency content being radiated by other
 17 transmitters.” Ex. A at 9–10. This limitation: (1) conflicts with the claim language;
 18 (2) imports extraneous limitations; and (3) excludes disclosed embodiments.

19 a. Plain and ordinary meaning does not limit the asserted
 20 claims to “identifying the frequency content being
 21 radiated by other transmitters.”

22 The “other transmitters” language Defendants propose adds a requirement on
 23 the source of the frequency content that is absent from the claims. Claim term 1 is
 24 illustrative.

25
 26
 27
 28 ⁴ Defendants’ proposal derives from a distortion of a teaching in the patents-in-suit.
 The patents-in-suit teach an embodiment in which waveforms *may be*
 “pseudorandom, non-cyclostationary, orthogonal **and/or** orthonormal.” *E.g.*, Ex. C
 (’837 patent) at 19:37–39 (emphasis added). Defendants’ proposal changes the
 position of the “and/or” from this teaching and inserts an additional “and” to arrive
 at Defendants’ newly created limitations “pseudo-random, non-cyclostationary, **and**
 orthogonal **and/or** orthonormal waveforms.”

#	Term	Odyssey's Construction	Defendants' Proposal
1.	providing a frequency content for a waveform by Fourier transforming a signal ('393 Claims 1, 8)	providing the frequency content by subjecting the desired band of frequencies to a Fourier transform	<i>identifying</i> the frequency content being radiated by other transmitters by subjecting the desired band of frequencies to a Fourier transform

The claims do not mention “other transmitters,” as they are concerned only with the recited transmitter (or “transmitting”). A Fourier transform is not limited to taking signals from “other transmitters” as inputs. Chiang Decl. at ¶¶ 16–22. Such a limitation impermissibly rewrites the claims. *K-2 Corp.*, 191 F.3d at 1364.

b. Limiting the asserted claims to “identifying the frequency content radiated by other transmitters” imports limitations from certain embodiments.

Defendants’ proposals narrow the scope of the claims to a single embodiment disclosed in Fig. 17 of the ’393 patent. The ’393 patent, through a continuation-in-part application, teaches “identifying frequency content being radiated by other transmitters” by “subjecting a band of frequencies over which it is desired to transmit information to a Fast Fourier Transform.” Ex. D (’393 patent) at 30:5–10. Limiting “providing a frequency content [for a waveform] by Fourier transforming a signal” to “identifying the frequency content being radiated by other transmitters by subjecting the desired band of frequencies to a Fourier transform,” however, restricts the provision of all frequency content in the claims according to the disclosure of this embodiment, which is impermissible under established case law. *GE Lighting*, 750 F.3d at 1309.

c. Limiting the asserted claims to “identifying the frequency content radiated by other transmitters” excludes disclosed embodiments.

The “other transmitters” limitation improperly excludes embodiments that fall within the claims. Embodiments leveraging the well-known fact that a Fourier transform operation necessarily provides the frequency content for a waveform do

1 not require any “other transmitter.” Chiang Decl. at ¶¶ 16–22. For example, Fig. 8
 2 of the ’837 patent (Ex. C) represents the power spectral density (*i.e.*, the frequency
 3 content) of the broadband waveforms that are to be *generated*. *Id.* at Fig. 3 and
 4 Fig. 8; *id.* at 20:16–19, 23:53–64. This is not the frequency content of “other
 5 transmitters.” The specification teaches that the Fig. 8 waveform may be generated
 6 by a “single PRWG and a single key.” *Id.* at 20:16–19. A “single PRWG and a
 7 single key” is not a transmitter. In other words, the Fig. 8 waveform is not radiated
 8 by another transmitter. Limiting the invention to “frequency content being radiated
 9 by other transmitters” improperly excludes this embodiment taught by Dr.
 10 Karabinis. *Broadcom Corp.*, 732 F.3d at 1333.

11 **3. Forming a desired spectrum shape is not limited to “water-
 12 filling” or “a power spectral density” (claim terms 3–10, 12).**

13 Certain asserted claims require forming a desired spectrum shape.
 14 Defendants’ proposals for claim terms 3–10 and 12 limit the forming of a desired
 15 spectrum shape to embodiments requiring “water-filling” or “a power spectral
 16 density.” Ex. A at 11–15. Water-filling is an equalization technique that involves
 17 the allocation of power to certain frequencies so as to account for channel
 18 impairments (*e.g.*, noise) affecting those frequencies. Chiang Decl. at ¶ 27. A power
 19 spectral density is a measure of a signal’s power over a frequency range—it is a
 20 mathematical representation of the signal in the frequency domain. Chiang Decl. at
 21 ¶ 26; Ex. M (The Authoritative Dictionary of IEEE Standards Terms (7th ed.
 22 2000)) (defining a power spectral density as the “mean squared amplitude per unit
 23 frequency of a waveform”). Defendants’ limitations: (1) are inconsistent with the
 24 claim language; (2) import limitations from the specification; and (3) exclude
 25 embodiments of the inventions.

26 a. Plain and ordinary meaning and does not limit forming to
 27 “water-filling” or “a power spectral density.”

28 The plain and ordinary meaning of the terms that require “forming” is
 29 apparent from the claims. *Phillips*, 415 F.3d at 1314 (“[T]he claims themselves

1 provide substantial guidance as to the meaning of particular claim terms.”). Claim
 2 term 4 (“forming at baseband a desired spectrum shape”) is illustrative.

#	Term	Odyssey's Construction	Defendants' Proposal
4	forming at baseband a desired spectrum shape ('230 Claim 1, 12)	forming at baseband a spectrum shape	forming at baseband a <i>water-filled</i> spectrum shape <i>or a power spectral density over a range of frequencies that substantially excludes certain frequency intervals in that range from providing frequency content</i>

7 The term “forming at baseband a desired spectrum shape” contains seven
 8 words, none of which require construction. The claim language does not limit the
 9 forming of a desired spectrum shape to “water-filling” or “a power spectral density
 10 over a range of frequencies.” No aspect of this claim term should be construed
 11 because the constituent words of this claim term—“forming,” “baseband,”
 12 “desired,” and “spectrum shape”—all are unambiguous. Rather, the remainder of
 13 the claim language defines how the desired spectrum shape is formed:

14 wherein said forming at baseband a desired spectrum shape
 15 comprises:
 16 processing at baseband devoid of chipping with a binary waveform;
 17 using at baseband a first plurality of frequencies to form the desired
 18 spectrum shape over a first time interval; and
 19 using at baseband a second plurality of frequencies to form the desired
 20 spectrum shape over a second time interval.

21 Ex. G ('230 patent) at claim 1.⁵

22 The same holds true for Defendants’ other proposals. In each case, the
 23 additional language of the claim that describes how the spectrum shape is formed
 24 does not limit the forming of a desired spectrum shape to “water-filling” or “a

25 ⁵ As with all of its constructions, Odyssey provides an alternative construction for
 26 this claim term that tracks Defendants’ construction, but simply leaves out the
 27 improper limitations Defendants add. Odyssey’s primary position is that no
 28 construction is necessary for this claim term. It is *not* Odyssey’s position that the
 word “desired” should be removed from this claim term as a result of the claim
 construction process. Forming a “desired” spectrum shape is taught by the patents-
 in-suit to broadly encompass the inclusion or exclusion of frequencies used or not
 used by other communications systems. *E.g.*, Ex. D ('393 patent) at 26:38–56.

power spectral density over a range of frequencies.” Neither “water-filling” nor “power spectral density” appear in any of the asserted claims.

b. Limiting the asserted claims to “water-filling” or a “power spectral density” imports limitations from certain embodiments.

5 Defendants' proposals narrow the scope of the invention to a single
6 embodiment disclosed in Fig. 17 of the '393 patent (for "water-filling") and/or
7 Fig. 8 of the '837 patent (for "a power spectral density").

The '393 patent (as well as the '606 and '230 patents) are continuation-in-part patents that introduce new matter related to Dr. Karabinis' Next Generation Chipless Spread-Spectrum Communications (XG-CSSC) system. *E.g.*, Ex. D ('393 patent) at 29:12–32:55. The XG-CSSC transmitter, shown in Fig. 17 of the '393 patent, teaches an embodiment that uses a water-filled spectrum shape. *Id.* Numerous claims of the patents-in-suit (as well as claims of patents in the same family but not part of this case) are premised on these XG-CSSC teachings. For example, claims directed to an embodiment that requires “a maximum amplitude value at an output of the inverse Fourier transform be limited in order to reduce non-linear distortion effects” are based on XG-CSSC teachings. *Id.* at 30:23–24 (“referring to FIG. 17, the output values of the IFFT may be limited in amplitude”); *id.* at claims 7, 14, 21, and 29; Ex. H ('606 patent) at claims 9, 22, 35, and 49. But the asserted claims do not include limitations related to the XG-CSSC system or the water-filling techniques taught therein.

22 Defendants' requirement for forming the desired spectrum shape with a
23 power spectral density derives from Fig. 8 of the '837 patent. This embodiment
24 "illustrates a power spectral density of a broadband waveform" and teaches that
25 certain frequency intervals "may be substantially excluded from providing
26 frequency content." Ex. D ('393 patent) at 23:53–24:6. The asserted claims do not
27 include limitations related to the power spectral density aspects of the invention.

1 Defendants' proposals must be rejected, as they restrict the forming of the
 2 desired spectrum shape in the claims according to the disclosure of these exemplary
 3 embodiments. *GE Lighting*, 750 F.3d at 1309.

4 c. Limiting the asserted claims to "water-filling" or "a
power spectral density" excludes disclosed embodiments.

5 Defendants' proposals impermissibly exclude disclosed embodiments. One
 6 of skill in the art knows that forming a spectrum shape of a waveform means
 7 selecting the frequencies over which that waveform is to exist. Chiang Decl. at
 8 ¶¶ 28–30. The specification is explicit that the frequencies over which the invention
 9 is implemented can be chosen in a variety of ways. Forming a "desired" spectrum
 10 shape is broadly disclosed in the patent, even teaching the formation of the
 11 spectrum shape in relation to the frequencies used in other communications
 12 systems. For example,

13 According to some embodiments of the present invention, a cellular
 14 telecommunications system that is configured to communicate with
 15 user devices using communications waveforms in accordance with the
 16 transmitter, receiver and/or waveform principles described herein . . .
 17 is **using the frequencies of one or more licensed and/or unlicensed**
bands (also being used by the one or more conventional
cellular/PCS systems and/or the one or more other systems).

18 Ex. C ('837 patent) at 26:38–47 (emphasis added). As another example,

19 The cellular telecommunications system may be further configured to
 20 provide communications **preferentially using frequencies of the one**
or more licensed and/or unlicensed bands that are locally not used
 21 substantially and/or are locally used substantially as guardbands
 and/or transition bands by the one or more conventional cellular/PCS
 systems.

22 *Id.* at 26:47–56 (emphasis added). One of skill in the art understands that the
 23 frequencies of the licensed bands used in conventional cellular systems are dictated
 24 by regulatory bodies (such as the FCC) that publish information on the use of such
 25 frequencies. Chiang Decl. at ¶¶ 28–30. As a result, the above embodiments involve
 26 neither water-filling nor a power spectral density to form a desired spectrum shape.
 27 Indeed, one of skill knows that the information used to form the desired spectrum
 28 shape in these embodiments is publicly available. *Id.* Limiting the invention to

1 forming a desired spectrum shape by “water-filling” or by using a “power spectral
 2 density” improperly excludes the above embodiments taught by Dr. Karabinis.
 3 *Broadcom Corp.*, 732 F.3d at 1333.

4 **4. Mapping a symbol sequence $\{I_k\}$ does not require assigning
 5 each symbol to a corresponding “one of M” waveforms “of
 6 the waveform alphabet $\{U_1(nT), \dots, U_M(nT)\}$ ” (claim terms
 7 19–24).**

8 Certain asserted claims require mapping the information symbol sequence
 9 $\{I_k\}$ into a waveform sequence $\{U_k(nT)\}$. Defendants’ proposals for claim terms
 10 19–24 limit the claims by requiring assignment of each symbol to a corresponding
 11 “one of M” waveforms “of the waveform alphabet $\{U_1(nT), \dots, U_M(nT)\}$. Ex. A
 12 at 16–17. This limitation is inconsistent with the claim language and excludes
 13 disclosed embodiments.

14 a. Plain and ordinary meaning does not limit assigning each
 15 symbol to “one of M” waveforms “of the waveform
 16 alphabet $\{U_1(nT), \dots, U_M(nT)\}$.

17 Defendants’ proposals impermissibly change the meaning of the claims in
 18 two ways. Defendants’ proposals dissolve the association between information
 19 symbols and waveforms in the claim language and require a “waveform alphabet”
 20 where the claims do not call for such a limitation.

21 The claims use standard mathematical notation to indicate the index for
 22 values within a sequence. Chiang Decl. at ¶¶ 31–37. These index values are
 23 indicated with the subscript “k.” Claim term 19 is illustrative.

#	Term	Odyssey’s Construction	Defendants’ Proposal
22 19	mapping by the 23 processor the 24 information 25 symbol sequence $\{I_k\}$ into a 26 waveform 27 sequence $\{U_k(nT)\}$; 28 (’940 Claim 1)	assigning each symbol in a symbol sequence $\{I_k\}$ to a corresponding waveform in sequence	assigning each symbol in a symbol sequence $\{I_k\}$ to a corresponding one of M waveforms of the waveform alphabet $\{U_1(nT), \dots, U_M(nT)\}$ in sequence

1 One of skill in the art understands the significance of both the information symbol
2 sequence $\{I_k\}$ and the waveform sequence $\{U_k(nT)\}$ having the same subscript. The
3 subscript is an index, indicating that for each value of $\{I_k\}$ there is a corresponding
4 value of $\{U_k(nT)\}$. *Id.* For example, when $k = 1$, I_1 corresponds to $U_1(nT)$; when
5 $k = 2$, I_2 corresponds to $U_2(nT)$; and so on. As the claims are written, one of skill in
6 the art understands that for each symbol in the symbol sequence $\{I_k\}$ there is a
7 corresponding waveform within the waveform sequence $\{U_k(nT)\}$. *Id.*

8 The claims implicated by these claim terms do not require a “waveform
9 alphabet.” Though the “waveform alphabet” requirement appears in other claims of
10 the patents-in-suit (*e.g.*, claims 5 and 14 of the ’940 patent and claims 1, 14, 27, 41,
11 54, and 67 of the ’169 patent), it is absent from the claims at issue here. Though the
12 specification teaches embodiments wherein an information symbol is mapped to a
13 waveform that is within a waveform alphabet, this concept was not claimed by the
14 claims at issue. Likewise, the claims implicated by these claim terms do not have
15 the index variable “M” introduced by Defendants, as this claim limitation is not
16 present in any claim of the patents-in-suit.

b. Limiting the asserted claims to a single waveform alphabet “ $\{U_1(nT), \dots, U_M(nT)\}$ ” excludes disclosed embodiments.

19 Beyond destroying the sub-k to sub-k correspondence of the claims,
20 Defendants' rewriting of the claim term excludes embodiments disclosed in the
21 specification by requiring each of the symbols of the symbol sequence I_k be mapped
22 to a waveform within a **single** waveform alphabet that has M waveforms. This
23 conflicts with the teaching of the patents-in-suit that in some embodiments different
24 symbols within the symbol sequence I_k may be mapped to waveforms that are in
25 **multiple** different waveform alphabets. Such embodiments are depicted in Fig. 7 of
26 the '837 patent and are explained in the discussion thereof. *See* Ex. C ('837 patent)
27 at 23:33–52 (“[T]he at least two alphabets of FIG. 7 may be replaced by new
28 alphabets following the transmission of a predetermined number of waveform

1 symbols.”). The specification teaches, therefore, that the first information symbol in
2 I_k (i.e., I_1) may be mapped to a waveform in a first waveform alphabet (i.e., a first
3 set of waveforms). The second information symbol in I_k (i.e., I_2) may be mapped to
4 a waveform in a second waveform alphabet (i.e., a second set of waveforms). The
5 patents-in-suit further teach that utilizing different waveform alphabets over time is
6 useful, for example when there are changes in the channel state. *Id.* at 22:26–30.
7 Setting aside that Defendants’ proposal rewrites the claims to destroy the sub-k to
8 sub-k correspondence, Defendants’ proposal improperly excludes embodiments of
9 the invention that allow for multiple alphabets.

5. **Transmission of a baseband signal is not limited to “direct” transmission “without up-conversion” (claim terms 28–30).**

2 Certain asserted claims require transmitting or radiating “baseband”
3 waveform sequences. Defendants’ proposals for claim terms 28–30 add limitations
4 to these claim terms to require “directly” transmitting these baseband waveforms
5 “without up-conversion.” Ex. A at 18. This limitation: (1) violates the doctrine of
6 claim differentiation; (2) imports limitations from the specification; and
(3) excludes embodiments of the inventions.

a. Claim differentiation illustrates the asserted claims are not limited to “direct” transmission “without up-conversion.”

Defendants' proposals simply add the word "directly" to the beginning of the claim terms and append the words "without up-conversion" to the end of the claim terms. Claim term 30 is illustrative.

#	Term	Odyssey's Construction	Defendants' Proposal
30	transmitting the baseband waveform sequence { $U_k(nT)$ }	transmitting the baseband waveform sequence { $U_k(nT)$ }	<i>directly</i> transmitting the baseband waveform sequence { $U_k(nT)$ } <i>without up-conversion</i>

1 When Dr. Karabinis wished to impart the “direct” transmission of waveforms
 2 “without up-conversion,” he did so explicitly in a claim. This creates a presumption
 3 that the limitation is not found in other claims that do not contain this requirement.
 4 *Phillips*, 415 F.3d at 1314–15.

5 One of skill in the art understands that a modulator or frequency translator is
 6 necessary to achieve up-conversion. Chiang Decl. at ¶¶ 38–39. In dependent claims
 7 31 and 45 of the ’940 patent (Ex. E) and dependent claims 11, 24, 51, and 64 of the
 8 ’169 patent (Ex. F), Dr. Karabinis specifically claimed a transmitter “devoid of a
 9 modulator and/or frequency translator” that is “configured to convey information
 10 by transmitting the baseband waveform sequence $\{U_k(nT)\}$ without subjecting the
 11 baseband waveform sequence $\{U_k(nT)\}$ to a modulator and/or frequency
 12 translator.” That limitation is not found in the claims Defendants seek to construe.
 13 As a result, the requirement that a transmitter is “devoid of a modulator and/or a
 14 frequency translator” is a requirement that the transmitter perform “direct”
 15 transmission “without up-conversion.” As such, there is a presumption against the
 16 application of Defendants’ requirements for “direct” transmission “without up-
 17 conversion” in the remaining claims. *Phillips*, 415 F.3d at 1315.

18 b. Limiting the asserted claims to “direct” transmission
 19 “without up-conversion” imports limitations from certain
embodiments.

20 Defendants’ proposals narrow the scope of the invention to the single
 21 embodiment disclosed in Fig. 7 of the ’837 patent, which “illustrates a ‘direct
 22 synthesis’ transmitter in that the transmitter directly synthesizes a waveform that is
 23 to be transmitted, without resorting to up-conversion, frequency translation and/or
 24 carrier modulation functions.” Ex. C (’837 patent) at 24:7–9. It is impermissible to
 25 restrict all claimed transmitting (and radiating) according to the disclosure of this
 26 single exemplary “direct synthesis” embodiment. *GE Lighting*, 750 F.3d at 1309.

27
 28

c. Limiting the asserted claims to “direct” transmission “without up-conversion” excludes disclosed embodiments.

Defendants’ proposals exclude other embodiments from the claimed invention. For example, Fig. 5 of the ’837 patent, which is an “illustration of additional functions of a transmitter according to additional embodiments of the present invention,” Ex. C (’837 patent) at 15:41–43, discloses an embodiment that employs a “frequency hop generator & up-converter.” Defendants’ proposals improperly exclude this embodiment.

C. Defendants' Proposals Include Several Other Miscellaneous Errors.

i. Claim terms 1, 2, 8, and 9: Defendants’ proposals improperly substitute “identifying” for “providing.” “Identifying” is not the same as “providing.” Ex. K (Merriam Webster’s Collegiate Dictionary (11th Ed. 2003)) (defining “identify” and “provide”); *Source Vagabond Sys. v. Hydrapak, Inc.*, 753 F.3d 1291, 1299–300 (Fed. Cir. 2014).

ii. Claim terms 4, 5, 6, 7, 10, and 12: When Dr. Karabinis wished to require the use of a “power spectral density” he did so explicitly. Dr. Karabinis specifically claimed a transmitter “wherein the frequency content is a power spectral density” in dependent claim 28 of the ’337 patent (Ex. I)—a patent in the patent family with the patents-in-suit. The asserted claims have no such limitation, demonstrating the “power spectral density” requirement Defendants propose is improper. *See* Section V.B.3.

iii. Claim terms 4, 6, 10, and 12: Defendants' proposals improperly limit the claim terms to require "excluding certain frequency intervals." This limitation is found in certain of the claims implicated by these constructions, but is completely absent from others—demonstrating the impropriety of Defendants' proposal. Specifically, because claims 1 and 11 of the '837 patent (Ex. C) and claims 1 and 23 of the '230 patent (Ex. G) do not recite excluding any frequency intervals, but

1 their dependent claims do, Defendants' proposals violate the claim differentiation
 2 doctrine and must be rejected. *Phillips*, 415 F.3d at 1315.

3 Moreover, Defendants' proposals exclude embodiments described in the
 4 specification that implement the invention over a defined frequency range, "for
 5 example, an L-band (e.g., from about 1525 MHz to about 1660.5 MHz)" as shown
 6 in Fig. 8, or "any other frequency range and/or interval(s)." Ex. C ('837 patent) at
 7 23:55–64. The power spectral density displayed in the first trace of Fig. 8 of the
 8 '837 patent is a continuous range of frequencies, with no frequencies excluded (in
 9 contrast with the second trace of Fig. 8 of the '837 patent, which does exclude
 10 certain frequencies from the power spectral density and is the embodiment that
 11 Defendants use as the basis for their proposal). In other words, the desired spectrum
 12 shape for the embodiment illustrated in the first trace of Fig. 8 was formed within a
 13 specified frequency range—not as a result of "excluding certain frequency intervals
 14 in a range of frequencies in a power spectral density."

15 iv. Claim terms 5 and 7: Defendants' proposals improperly substitute the
 16 word "determining" for the word "selecting." "Determining" is not the same as
 17 "selecting." Ex. K (Merriam Webster's Collegiate Dictionary (11th Ed. 2003))
 18 (defining "determine" and "select"); *Source Vagabond Sys.*, 753 F.3d at 1299–300.
 19 The plain meaning of this unambiguous claim language is not so limited.

20 v. Claim terms 5, 9–10, 12–13, and 15–18: Defendants' proposals improperly
 21 substitute the word "creating" for the word "generating." Ex. K (Merriam
 22 Webster's Collegiate Dictionary (11th Ed. 2003)) (defining "create" and
 23 "generate"); *Source Vagabond Sys.*, 753 F.3d at 1299–300. The plain meaning of
 24 this unambiguous claim language is not so limited.

25 vi. Claim term 11: Defendants' proposal construes a collection of disparate
 26 portions of claim 58 of the '230 patent (Ex. G) as part of a single claim term. This
 27 is nonsensical. Construing the collection of text Defendants identify confuses the
 28

1 meaning of the claim, in particular the treatment of “the second plurality of
 2 frequencies.”

3 vii. Claim term 13: Defendants’ proposal improperly removes the claim
 4 language “wherein the second plurality of frequencies differs from the first plurality
 5 of frequencies in at least one frequency.”

6 viii. Claim term 17: Defendants’ proposal improperly removes the claim
 7 language “responsive to the desired spectrum shape.”

8 ix. Claim terms 17 and 18: Defendants’ proposals improperly introduce “a
 9 processor that is configured to create” within the claim terms. Claims 1 and 6 of the
 10 ’837 patent and claims 1 and 12 of the ’230 patent (all of which are implicated by
 11 the claim terms) are method claims that do not call for processors.

12 x. Claim terms 25 and 26: Defendants’ proposals improperly add the
 13 limitation “that define a waveform alphabet” to the waveforms recited in these
 14 claim terms. Such a limitation impermissibly rewrites the claims. *K-2 Corp.*, 191
 15 F.3d at 1364.

16 xi. Claim term 26: Defendants’ proposal for claim term 26 (“waveform
 17 sequence $\{U_j(iT)\}$ ”) is untenable on account of its requirement that $\{U_j(iT)\}$ be
 18 received when $\{U_k(nT)\}$ is transmitted. The claims do not specify any relationship
 19 between $\{U_k(nT)\}$ and $\{U_j(iT)\}$. Such a limitation impermissibly rewrites the
 20 claims. *K-2 Corp.*, 191 F.3d at 1364.

21 **D. No Claim Terms Should “Alternatively” Be Construed Subject to
 22 35 U.S.C. § 112(6) (claim terms 8–13, 22–24).**

23 Defendants suggest that, as an alternative to their proposals, certain claim
 24 terms be construed as means-plus-function claims according to 35 U.S.C. § 112(6).
 25 *See* Ex. A at claim terms 8–13 and 22–24. A means-plus-function claim does not
 26 describe structure; it only describes a function to be performed by some unnamed
 27 means or apparatus.

1 An inventor is presumed not to have engaged in “means-plus-function”
 2 claiming when the word “means” is absent from the claim. *Williamson v. Citrix*
 3 *Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). Indeed, “[t]he correct inquiry,
 4 when ‘means’ is absent from a limitation, is whether the limitation read in light of
 5 the remaining claim language, specification, prosecution history, and relevant
 6 extrinsic evidence, has sufficiently definite structure to a person of ordinary skill in
 7 the art.” *Apple, Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014). If so,
 8 it is not a means-plus-function claim.

9 **1. Defendants cannot overcome the presumption against**
 10 **application of 112(6).**

11 Since none of the terms at issue contain the word “means,” these claims are
 12 presumed *not* to be means-plus-function claims. Defendants bear the burden of
 13 rebutting the presumption against applying 112(6), *Williamson*, 792 F.3d at 1348,
 14 and they cannot overcome this presumption.

15 The claim language itself makes clear that a device and structure is being
 16 claimed, not some unnamed structure that performs a described function. Consider
 17 claim term 8, for example. The implicated claim requires:

18 a processor that is configured to provide a frequency content for a
 19 waveform by Fourier transforming a signal, to form a desired
 20 spectrum shape for the waveform, that differs from the frequency
 21 content, responsive to the frequency and to generate the waveform by
 22 inverse Fourier transforming the desired spectrum shape

23 Ex. D ('393 patent) at claim 15. Defendants alternatively contend this should be
 24 construed under 112(6). However, the very language of the claim calls for “a
 25 processor that is configured” to perform certain tasks. This is not “purely
 26 functional” language. Descriptions of how the processor achieves those tasks are
 27 found throughout the specification in the form of figures and prose. Chiang Decl. at
 28 ¶¶ 40–47. The same analysis holds true across the various terms that Defendants
 suggest should be considered under 112(6) in the alternative. As such, Defendants’

alternative proposals that certain claims should be afforded treatment under 112(6) should be rejected.

2. Defendants' identification of structure is impermissibly narrowed to only certain embodiments.

A proper construction under 112(6) “must include all structure that actually performs the recited function.” *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 296 F.3d 1106, 1119 (Fed. Cir. 2002). Defendants’ proposals in the alternative violate this tenet of claim construction—just as Defendants’ other proposals impermissibly exclude embodiments. *See* Sections V.B.1.c; V.B.2.c; V.B.3.c; V.B.4.b; V.B.5.c. Odyssey’s alternative proposed structure, should any claim term be identified as subject to 112(6), correctly encompass all structure disclosed in the specification—including, but not limited to, the structure found in the select embodiments Defendants identify. *See* Ex. B. As such, if any claim term is found to be subject to 112(6), Odyssey’s identification of corresponding structure should be adopted and Defendants’ overly narrow proposals should be rejected.

VI. CONCLUSION

For all of the foregoing reasons, Odyssey respectfully requests that the Court adopt its constructions of the disputed claim terms, reflecting the plain and ordinary meaning of those claim terms.

1 DATED: February 25, 2016

2 Respectfully submitted,

3 MCKOOL SMITH, P.C.

4 By John B. Campbell

5 John B. Campbell

6 Attorney for Plaintiff,
7 ODYSSEY WIRELESS, INC.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing document has been served on this date to all counsel of record who are deemed to have consented to electronic service via the Court's CM/ECF system per Civ. L.R. 5.4(d). Any other counsel of record will be served by electronic mail, facsimile and/or overnight delivery upon their appearance in this matter.

I declare under penalty of perjury of the laws of the United States that the foregoing is true and correct.

Executed February 26, 2016 at Austin, Texas.

/s/ Matt Rappaport
Matt Rappaport